HEAT PUMP DIGITAL THERMOSTAT

Model 43057 Owners Manual

Congratulations!
Your new CTC thermostat will provide years of reliable service. Using this digital thermostat will provide more uniform comfort in your home through the seasons. Thank you for buying a Climate Technology product!

Please read this manual for complete instructions on installing and operating your thermostat. If you require further assistance, call CTC Technical Support at 1-800-676-7861 from 7am to 7pm Central Time.

Remove the mylar label from the display window.

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IMPORTANT INFORMATION

1.This thermostat is designed to work on the following systems:
- Single-Stage Heat Pump
- Mulit-stage Heat Pump (up to 2 heating and 2 cooling)

2.Temperature Range This thermostat can be set between 45°F and 95°F (7°C and 35°C).However, it will display room temperatures from 30°F to 99°F (0°C and 37°C). "HI" will be displayed if the temperature is higher than 99°F (37°C), and "LO" will be displayed if the temperature is lower than 30°F (0°C).This thermostat will automatically cutoff in Heat mode if the temperature rises above 95°F (35°C), and automatically cutoff in Cool mode if the temperature drops below 40°F (4°C).

3.Compressor Protection This thermostat provides a 3.5 minute delay after shutting off the system before it can be restarted. This feature will prevent damage to your compressor caused by rapid cycling.

INSTALLATION

What You Need
This thermostat includes two #8 slotted screws and two wall anchors for mounting. To install your thermostat, you should have the following tools and materials.
- Slotted screwdriver(s)
- Small Philips screwdriver
- Hammer
- Electric drill and 3/16" bit

Remove Old Thermostat
CAUTION: Do not remove any wiring from the existing thermostat before reading these instructions carefully. Wires must be labeled prior to removal.
IMPORTANT! Turn off the power to the HVAC system at the mainpower panel or at the HVAC system.
Remove existing thermostat cover and thermostat. See Figure 1. Some thermostats will have screws or other locking devices that must first be removed. Once the wall mounting plate is exposed, look for wires.
If wires are not visible, they may be connected to the back of the wallplate. Again, look for screws, tabs, etc. Some models have doors that open to expose wires and mounting screws. See Figure 1.

Figure 1

Wire Labeling

- ***CAUTION!*** TURN OFF POWER TO THE HEAT PUMP SYSTEM BEFORE YOU ATTEMPT TO ACCESS THE THERMOSTAT'S WIRING.
- ***IMPORTANT!*** BEFORE DISCONNECTING ANY WIRES FROM THE EXISTING THERMOSTAT, APPLY THE PROVIDED SELF-ADHESIVE LABELS TO THE WIRES.
- Use the information in Table 1 below and the provided adhesive labels to label the wires. IGNORE THE COLOR OF THE WIRES since these do not always comply with the standard.

- After labeling the wires, disconnect them from the existing thermostat terminals.
- Remove existing wallplate. To make sure wires do not fall back into wall opening, you may want to secure them to the wall.
- If the hole in wall is larger than necessary for wires, seal the hole with insulating material so that no hot or cold air can enter the back of the thermostat from the wall. This air could cause a false thermostat reading.
- A wiring diagram is provided on page 23 of these instructions.

If the terminal letter on the existing thermostat is. . .	. . .then mark the wire with adhesive label
R, V-VR, or VR-R	R
Y, Y1, or M	Y1
Y2	Y2
W1, W2, or W-U	W2
E	E
G or F	G
O or R	O
B	B
L or X	L
C, X, or B	C (Required)

Table 1

Mount Wallplate

- Remove the wallplate from the thermostat by pressing the release tab on the bottom of the thermostat. See Figure 2.

Release Tab

Figure 2

- Position wallplate on wall and pull existing wires through the large opening, then level for appearance. If the existing mounting holes from the old wallplate line up with the slots in the new wallplate, then use the exisitng holes. If the exisitng holes do not line up with the slots in your new wallplate, then mark the wall for holes for the provided plastic anchors.
- Drill holes with 3/16" bit and gently tap anchors into the holes until flush with wall.

- Reposition wallplate, pulling wires through large opening. Insert provided mounting screws into wall anchor and tighten. See Figure 3.
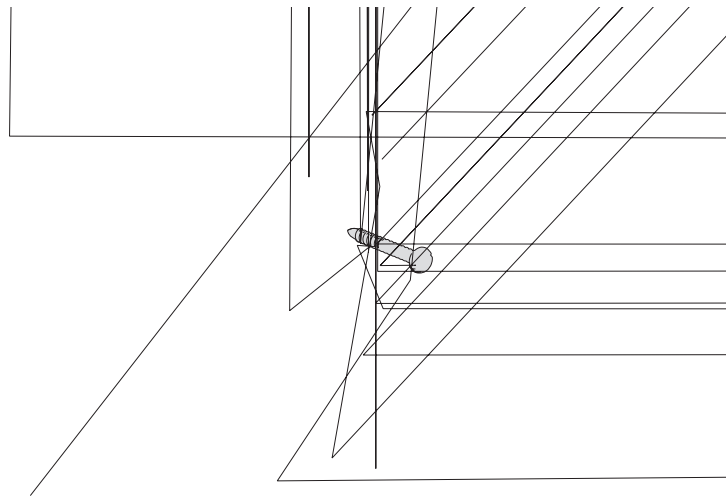

Figure 3

Connect Wires and Mount Thermostat to Wallplate

- Match and connect the labeled wires to the appropriate coded terminal screws on the wallplate. See Figure 4. Ignore any wires which may be present, but which were not connected to the old thermostat.
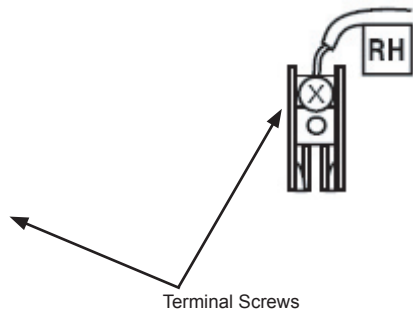

RH

Terminal Screws

Figure 4

- Be sure to tighten the terminal screws securely, as a loose wire could cause operational problems with your system or thermostat.
- Push excess wire back into the hole to prevent interference when installing the thermostat to the wallplate.
- Set the System Switch to "off", and the Fan Switch to "auto".

- On the back of the thermostat are the System Set-Up Switches. See Figure 5. If the heat pump system has an electric auxiliary system, then slide the #1 switch to HE position. If the heat pump system has a gas auxiliary system, then slide #1 switch to the HG position.

  To set up the LCD display to show the temperature in Fahrenheit, slide the #2 switch to the F position. To set up the LCD display to show the temperature in Celsius, then slide the #2 switch to the C position.
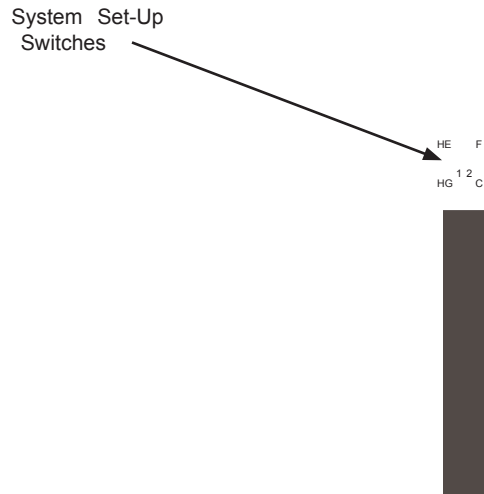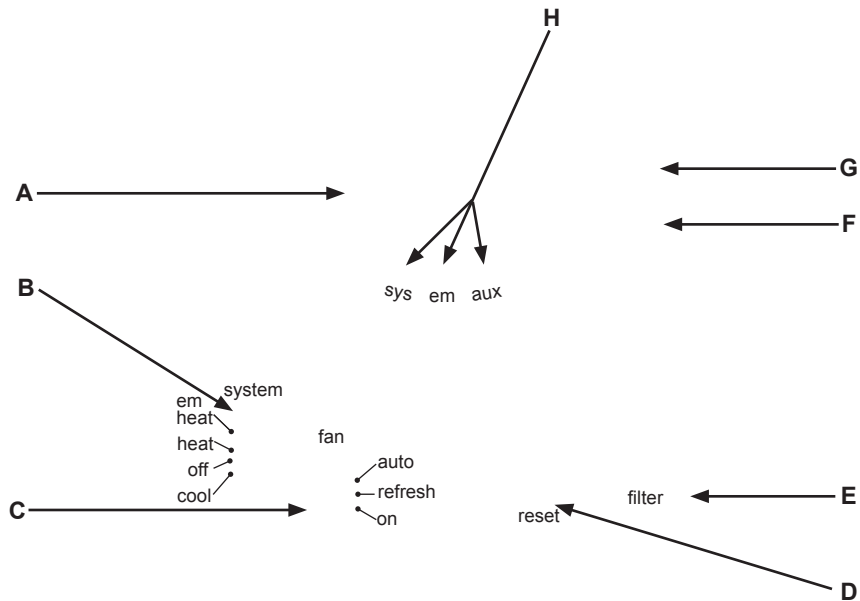

System   Set-Up
Switches

HE   F

HG 1 2 C

Figure 5

Switches and Buttons

H

A →

G ←

F ←

sys   em   aux

B →

system
em
heat
heat
off
cool

fan
auto
refresh
on

C →

filter ←

E ←

reset

D

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Switches and Buttons

A LCD Readout - displays indoor temperature, set temperature, and information about the heat pump system's operation and status.

B System Switch - "em heat" is the Emergency Heat. NOTE: The Emergency Heat Mode is not an energy saving mode, so use it only when necessary. "heat" is the normal heat mode. "off" turns the system off. "cool" is the normal cooling mode.

C Fan Switch - In Auto mode, the fan runs when the system is on for heating or cooling. The Refresh mode sets the fan to run automatically at intervals of 10, 15, 20, or 30 minutes out of every hour when the system is not running for heating or cooling. In the On mode, the fan runs continuously regardless of system status.

D Reset button - push the Reset button with the end of a paper clip to reset the thermostat and return to its previous settings.

E Filter button - resets the filter time counter.

F Down button - used to change the temperature setting and the option settings.

G Up button - used to change the temperature setting and the option settings.

H

15

A temp - the large number being displayed is either the indoor temperature or the set temperature.

B em - emergency heat is turned on.

C heat - normal heat is turned on.

D cool - normal cooling is turned on.

E fan - indicates the fan is running.

F st 1 - comes on when you set the Stage 1 heat and cool span.

G st 2 - comes on when you set the Stage 2 heat and cool span.

H Filter button - resets the filter time counter.

I alpha-numeric - displays temperature (either indoor or set).

J C - the temperature being displayed is Celsius. Select either Celsius or Fahrenheit with the #2 System Set-Up Switch. NOTE: The LCD Display DOES NOT show an "F" for Fahrenheit.

K set - the large number being displayed is the set value (temperature, Stage 1 span, Stage 2 span, Residual Cooling Fan Delay, or the Refresh Fan Cycle time).

NOTE: With the "system" switch in the "off" position, if you press the Up or Down button, the LCD Display will show "OF".
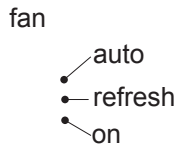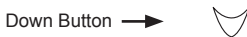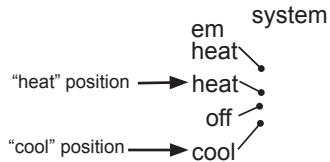
OPERATION

Review the Set Temperature
1. Slide the "system" switch to either the "heat" position or the "cool" position.
2. Press either the Up or Down button for less than one second. The LCD Display will show "temp", "set", and the set temperature.

Change the Set Temperature
1. Press and hold either the Up or Down button for more than one second. The LCD Display will show "temp", "set", the set temperature.
2. To raise the Set Temperature, press the Up button. To lower the Set Temperature, press the Down Button.

Heating or Cooling
1. To set the system for Heating, slide the "system" switch to "heat". To set the system for Cooling, slide the "system" switch to "cool".
2. Slide the "fan" switch to "auto", refresh", or "on".

system

em
heat
"heat" position → heat
off
"cool" position → cool

Up Button →

Down Button →

fan

auto
refresh
on

Setting Options
The following Options are available on your thermostat:
1. 1st stage span - The factory setting for Stage 1 heating and cooling is 1, meaning that your thermostat will cycle at 1°F (0.5°C) above and below the set temperature in Stage 1. If the system is cycling too fast or too slow, then the Span can be adjusted to change the cycle time.
2. 2nd stage span - The second or auxiliary stage turns on when the first stage does not have enough capacity to reach the set temperature. The factory setting for Stage 2 is 2 (3°F, 1.5°C).
3. The Residual Cooling Fan Delay Setting - Sets the fan to run for 0, 30, 60, or 90 seconds after the compressor turns off in the cooling mode. The default setting is 30 seconds.
4. The Refresh Cycle Time - Sets the fan to run automatically at intervals of 10, 15, 20, or 30 minutes to circulate air when the system is not running for heating or cooling. The default setting is 15 minutes.

To access the Option Mode and set the Span setting of the 1st stage:
1. Press the Up and Down buttons at the same time and hold them for three seconds. The LCD Display will show "st 1", "set", and the 1st stage Span setting, either 1 (factory setting), 2, or 3, meaning that the Span setting is at 1°F (0.5°C), 2° (1°C), or 3° (1.5°C).
2. Press the Up button to increase the 1st stage Span setting, which will cause your system to run longer. Press the Down button to decrease the 1st stage Span setting, which will cause your system to run shorter.

To set the Span setting of the 2nd stage:
1. Press the Up and Down buttons at the same time again and hold them for three seconds. The LCD Display will show "st 2", "set", and the 2nd stage Span setting, either 1, 2 _(factory setting), 3, 4, or 5, meaning that the Span setting is at 2°F (1°C), 3°F (1.5°C), 4°F (2°C), 5°F (2.5°C), or 6°F (3°C).
2. Press the Up button to increase the 2nd stage Span setting. Press the Down button to decrease the 2nd stage Span setting.

To set the Residual Cooling Fan Delay:
1. Press the Up and Down buttons at the same time again and hold them for three seconds. The LCD Display will show "cool", "set", and the current Residual Cooling Fan Delay time in seconds (0, 30, 60, or 90).
2. Press the Up button to increase the Residual Cooling Fan Delay time. Press the Down button to decrease the Residual Cooling Fan Delay time.

To set the Refresh Cycle Time:
1. Press the Up and Down buttons at the same time again and hold them for three seconds. The LCD Display will show "fan", "set", and the current Refresh Cycle Time in minutes (10, 15, 20, or 30).
2. Press the Up button to increase the Refresh Cycle Time. Press the Down button to decrease the Refresh Cycle Time.

Filter Reminder
The LCD Display will show "filter" after every 400 hours of fan operation, as a reminder to change the HVAC system's filter as soon as possible.

Resetting Your Thermostat
Should the thermostat's previous settings be desired, use the tip of a paper clip to press the "reset" button.
NOTE: Pressing the Reset button reverts the thermostat to its previous settings, NOT the factory settings.

reset

TROUBLESHOOTING

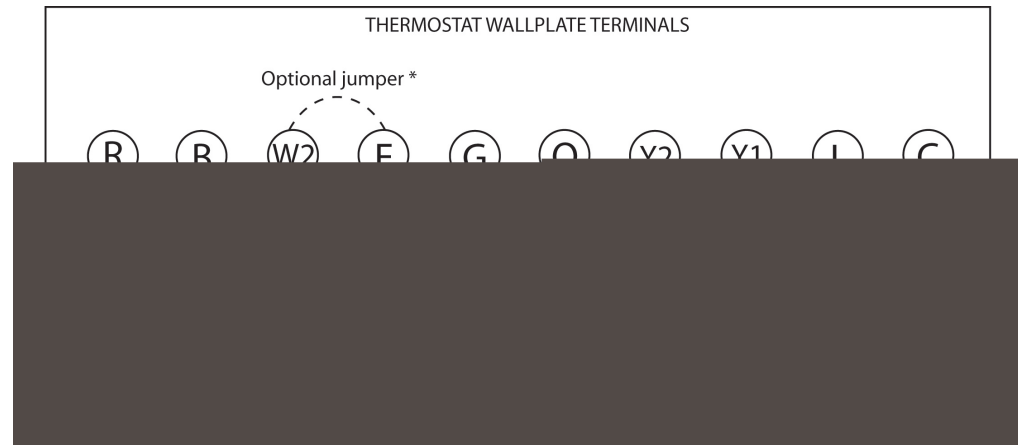| Problem	Solution
Scrambled or double display (numbers over numbers)	1. Remove the clear Mylar decal form the LCD Display.
LCD Display is blank	1. Check wiring connections. A Common (C) wire is required for operation. 2. Press and hold the Reset button for two seconds with the tip of a paper clip.
Auto/Fan does not turn on	1. Move the #1 System Set-Up Switch (HG/HE) to the opposite position.
Erratic display	1. Press and hold the Reset button for two seconds with the tip of a paper clip. The thermostat will need to be re-programmed.
Fan runs continuously	1. Check the Fan Switch. The fan will run continuously if the Fan switch is in the "on" position.
Heating or cooling does not go on or off	1. Ensure the System Switch is in the desired position ("heat", "cool", "em heat"). 2. There may be as much as a 4 minute Compressor protection delay before the Heat or Cool system turns on - wait and check. 3. Check your circuit breakers and switches to ensure there is power to the system. 4. Make sure your furnace blower door is closed properly.

TROUBLESHOOTING

Problem	Solution
System continues to operate in the Off position	1. Replace thermostat.
Thermostat permanently reads "HI", "LO" or "E1" after pressing the Reset button	1. Replace thermostat.

If you experience any other problems with your CTC thermostat, call CTC Technical Support at 1-800-676-7861 from 8am to 5pm Central Time.

WIRING DIAGRAM

THERMOSTAT WALLPLATE TERMINALS

Optional jumper *

R   R   W2   E   G   O   X2   Y1   L   C